

# SQL

## 1. Write the SQL statements to do each of the following:

- 1) Create a table PERSON with attributes ID, FirstName, LastName, Address, Salary. Make the necessary assumptions to define the types for each of the attributes. Define ID to be the primary key of the table.
- 2) Insert 5 tuples into the table you created in step 1. ID of tuples you insert should be from 101 to 105.
- 3) Retrieve of all persons whose LastName ends with the alphabet “m”.
- 4) Calculate the average of salaries of everyone having IDs between 101 to 104 (both inclusive).
- 5) Create a view called RICH\_PERSON. This view should be constructed from the PERSON table and must contain only three attributes: ID, FirstName, LastName of only those persons who have a salary greater than \$125,000.

## 2. This problem is based on a book database with four relations:

BookAuthor(book, author, earnings)      BookReference(book, referencedBook)

BookReview(book, reviewer, score)      BookPublish(book, year, publisher, price, num)

In this database, each book may have one or more authors and each author may make a different amount of money from that book. One book may make reference to other books. One book may be reviewed by different reviewers and get different scores. An author could also be a reviewer and a publisher.

## Write the following queries in SQL.

- 1) Find all the books published in 1999 and reviewed by “Paul Gray”.
- 2) Find all the books reviewed by both “Paul Gray” and “Daphne Merkin”.
- 3) List each author's total earnings in 1995-2000 in descending order.

## 3. Given the following tables:

Course (number, title, credits, syllabus)

CourseOffering (number, year, semester, section-number, classroom)

CourseOffering\_timing (number, year, semester, section-number, timing)

Student (student-id, name, department)

Instructor (instructor-id, name, department, title)

Prerequisite (course-number, prerequisite-number)

Enrolls (student-id, number, year, semester, section-number, grade)

Teaches (instructor-id, number, year, semester, section-number)

Choose and install a DBMS system, such as PostgreSQL, MySQL, and SQL Server. Create the above tables, defining primary keys and foreign keys if there is any. Populate each table with at least 10 rows. Write and execute the following SQL queries. You need to submit the sql scripts of create, populate, and query statements, as well as the query results.

- 1) Retrieve student-ids, names of students with a major in “Computer Science”.
- 2) Retrieve student-ids of students who have taken a class with an instructor named “John”.

- 3) Retrieve student-ids of students who have never taken a class with an instructor named "John".
- 4) Retrieve department names and the number of students with that department major.
- 5) Retrieve names of instructors teaching Computer Science courses, the sections (course number, section number, year, semester) they are teaching, and the total number of students in the sections.